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DEPARTMENT OF GENETICS
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Dear Art--

When you get back:

Have you thought what are the possible substrates of the "unwinding enzyme"?

I could visualize that UE might bind itself to one site of the primer DNA; unless this were immediately followed by the polymerase, this would not be very effective. I can't conceive of one (or a few) molecules of UE literally unwinding the DNA, and holding it so. As a third alternative, I would suggest that there is some other substrate for the UE, whose function is to form relatively easily dissociated complexes between UES and the DNA sites, thereby breaking the hydrogen bonds between complementary bases. These complexes, in turn, would be displaced by the polymerase action.

What could X be? It might be the deoxyside triphosphates themselves -- in effect this is what you are assaying for now. I wonder if it might not be the ribosides or their phopshates. Alternatively, there might be some quite different bonding, perhaps comparable to, but weaker than, the formaldehyde complexes with the amino groups.

The main point of the remark is that it might be futile to look for the UE effect as an accessory to polymerase action in highly purified preps., the soluble components, other than the deoxyphosphates, might be critical too.

Joshua

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